# Rhodora

JOURNAL OF THE

NEW ENGLAND BOTANICAL CLUB.

Conducted and published for the Club, by

BENJAMIN LINCOLN ROBINSON Editor-in-chief.

FRANK SHIPLEY COLLINS
MERRITT LYNDON FERNALD
HOLLIS WEBSTER } Associate Editors.

WILLIAM PENN RICH
EDWARD LOTHROP RAND } Publication Committee.

Vol. 12. May, 1910. No. 137.

CONTENTS:

Variations of Juncus effusus. *M. L. Fernald & K. M. Wiegand* . 81

Crataegus viridis L. in Virginia. *W. W. Eggleston* . . . . 93

Flora of the Boston District,—VII . . . . . 95

Pinus rigida in Coos. Co., N. H. *W. Deane* . . . . . 99

Josselyn Botanical Society—Notice. *E. B. Chamberlain* . 99

Winter Meeting of Vermont Botanical Club. *N. F. Flynn* . 100

Boston, Mass.
1052 Exchange Building.

Providence, R. I.
Preston and Rounds Co.

**RHODORA.**—A monthly journal of botany, devoted primarily to the flora of New England. Price $1.00 per year ($1.25 to all foreign countries including Canada); single copies 15 cents. Volume 1, $2.00, Vol. 2, $1.50. All remittances by check or draft, except on Boston or New York, must include ten cents additional for cost of collection. Notes and short scientific papers, relating directly or indirectly to the plants of the northeastern states, will be gladly received and published to the extent that the limited space of the journal permits. Forms will be closed five weeks in advance of publication. Authors (of more than one page of print) will receive 25 copies of the issue in which their contributions appear. Extracted reprints, if ordered in advance, will be furnished at cost.

Address manuscripts and proofs to
B. L. ROBINSON, 3 Clement Circle, Cambridge, Mass.

Subscriptions, advertisements, and business communications to
W. P. RICH, 300 Massachusetts Avenue, Boston, Mass.

Single copies may be had from
E. L. RAND, Corresponding Sec'y N. E. Botanical Club,
1052 Exchange Building, Boston, Mass.

Entered at Boston, Mass., Post office as Second Class Mail Matter

---

SYNOPTICAL FLORA OF NORTH AMERICA, by A. GRAY and others. Vol. I. Fascicles 1 and 2. A critical treatment of forty-five families of polypetalæ (*Ranunculaceæ to Polygalaceæ*) 1895-1897. $5.20.—GRAY HERBARIUM of Harvard University, Cambridge, Mass.

---

KEY TO NEW ENGLAND TREES, Wild and Commonly Cultivated, based primarily upon leaf characters, by J. FRANKLIN COLLINS and HOWARD W. PRESTON. Price 40c. net. PRESTON & ROUNDS CO., Providence, R. I.

---

EMENDATIONS OF THE SEVENTH EDITION OF GRAY'S MANUAL, I. Reprints of the article on "Emendations of the Seventh Edition of Gray's Manual, I," on paper of the size of Gray's Manual can be had on application to E. L. RAND, 1052 Exchange Building, Boston, Mass. Price 10 cents, postpaid.

---

CHECK LIST OF GRAY'S MANUAL, 7th EDITION, compiled by M. A. DAY. Leatherette. Pocket size. Invaluable for collectors' memoranda and herbarium records. Published and sold by the GRAY HERBARIUM, Cambridge, Mass. Price postpaid 20 cts. each. Ten copies $1.50.

---

*Advertisements of Nurserymen and Dealers in Botanical and other Scientific Publications are inserted in these pages at the following rates per space of 4 in. by 3–4 in. 1 year $4.00, 6 months $2.50.*

# Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 12. May, 1910. No. 137.


## THE NORTH AMERICAN VARIATIONS OF JUNCUS EFFUSUS.


M. L. Fernald and K. M. Wiegand.


Perhaps no species of the genus *Juncus* is more familiar than is *Juncus effusus* L., largely because of its wide distribution in temperate regions of both the Northern and Southern Hemispheres. Like most species of almost cosmopolitan range, however, it has developed certain pronounced geographic variations, many of which have been described either as varieties or as distinct species, but few of which have been recognized by American students of the genus. During the past summer, while botanizing extensively in eastern Maine and adjacent New Brunswick, the writers became convinced, from their field observations, that as represented in that district *Juncus effusus* consisted of several well-marked varieties or possibly species. Subsequent study of all the material in the Gray Herbarium, the herbaria of the New England Botanical Club, the Geological Survey of Canada, the Philadelphia Academy of Natural Sciences, and the Philadelphia Botanical Club, and the private collections of Messrs. H. H. Bartlett, Walter Deane, G. G. Kennedy, and other members of the New England Botanical Club, has shown that not only are there several good varieties in eastern America, but that in the main the plants of the Pacific Slope represent a different series of variations. In all these plants the general habit is very similar and the perianths, capsules, and seeds are in their more important characters essentially the same. In fact, though showing marked varietal tendencies in the size and texture of the culms; the texture, size, and color of the basal sheaths; the size and branching of the inflorescence; the texture, length, and color of the perianth-segments; and the color and size of the capsules;

many of the extremes seem to pass by transitional specimens to one or another of the other varieties. A prolonged study of the group as represented both in America and in the Old World has failed to bring out such beautifully clear lines of demarcation as are now known to separate the species of the *Juncus tenuis* group (until recently aggregated as *J. tenuis*), so that the writers, at present, do not feel justified in treating them as more than geographic varieties of a cosmopolitan type.

In any critical study of the group which passes under the general name of *Juncus effusus* the first requisite, of course, is the identification of the typical form of *J. effusus* L. This seems nearly impossible except by circumstantial evidence, since the original treatment of the species was so very uncritical. The typical form, however, must have been from Europe, so it has seemed desirable to determine first whether we have in America anything that will match with sufficient closeness anything in Europe. In the Gray Herbarium there are many sheets of *J. effusus* from various parts of Europe, but after prolonged study we have reluctantly come to the conclusion that there is nothing in America closely similar to those European sheets which agree best with the descriptions given by recent European authors of typical *J. effusus*. This European material all agrees in having very small flowers with a comparatively soft perianth after the manner of var. *compactus*; and it seems probable that the var. *compactus* is really only *J. effusus* with a more condensed inflorescence than the most typical form of the species. The basal sheaths in the European plants may be pale or dark (var. *atratus* Aschers. & Graebner, Syn. ii. pt. 2, 443, 1904). In America the only forms (except var. *compactus*) which might possibly be considered as identical with the European *J. effusus* are those here treated as var. *solutus* and var. *decipiens*. The former, var. *solutus*, though having a similar stature and pale sheaths, nevertheless differs from the European in the more rigid and appressed perianth and very diffuse inflorescence which is even larger than that of the hollow-stemmed European var. *fistulosus* Buch. The var. *decipiens*, in the size of the flowers, texture of the perianth, and size of the inflorescence agrees well with the European material, but in the slender wiry culms with very dark reddish-brown sheaths is unlike any material we have seen from Europe, but on the other hand matches almost exactly all the material in the Gray Herbarium from eastern Asia.

That the American and European material of *Juncus effusus* is not identical seems to have been first noticed by Rostkovius in 1801, but apparently his discriminating observation has been overlooked by most later authors. He says: "Specimens of this species from North America seem to differ a little in color, for the petals even in fruiting flowers are green; otherwise the structure of all parts is the same as in ours." [1]

In their distribution in North America the varieties of *Juncus effusus* are confined to the regions east of the Great Plains and west of the Rocky Mountain System, mostly at comparatively low altitudes, being apparently unknown on the Great Plains or in the Rocky Mts. In the East they rarely extend westward beyond the region of the Great Lakes and the Mississippi Basin except on the southern coastal plain. In the West they are unknown east of British Columbia, Washington, Oregon and California. This extreme isolation of the plants may to some extent account for the fact that we do not find identical varieties upon the eastern and western edges of the continent.

The different forms of *Juncus effusus* in America, as we have identified them, may be distinguished as follows:

A. Flowers small, sepals 1.7–2.6 (rarely 2.9) mm. long, mostly somewhat spreading from the base: perianth-segments not very dark but usually with two distinct brown lateral bands, rather soft in texture and therefore not rigid when dry: inflorescence small (1–4 cm. in diameter), or if larger with the sepals less than 2.6 mm. long.

Culms rather stout, 1.5–4 mm. in diameter at the top of sheaths: sheaths pale: inflorescence small, compact.

Culms finely many-striate and usually deep-green var. *compactus.*

Culms coarsely 12–15-sulcate, usually pale-green var. *conglomeratus.*

Culms rather slender, 1–2 (rarely 3) mm. in diameter at the top of the sheaths: sheaths dark: inflorescence small and rather close.

var. *decipiens.*

Culms very slender, 1–1.5 mm. in diameter at the top of the sheaths: sheaths pale: inflorescence much more open, loosely fastigiate.

var. *exiguus.*

B. Flowers of medium size, sepals 2.5–2.9 (rarely only 2) mm. long, rarely spreading: perianth-segments very dark-brown, mostly soft in texture, therefore not rigid when dry, each with two broad dark-brown lateral

[1] Specimina huius speciei ex America boreali colore parum differre videntur, sunt enim petala etiam in fructiferis floribus viridia; ceterum structura omnium partium eadem ac in nostra.— Rostk. Dissert. de Junco, 11 (1801).

bands: inflorescence from dense to somewhat loose (1–4 cm. in diameter). Uppermost sheath close, coriaceous, lustrous, usually castaneous throughout . . . . . var. *gracilis.*
Uppermost sheath looser, membranous, dull, greenish-drab above. var. *brunneus.*

C. Flowers medium or large, sepals 2.5–4.2 mm. long (rarely shorter): perianth-segments with no very conspicuous brown bands, frequently firmer in texture, often rigid, appressed or somewhat spreading: inflorescence commonly open, rarely somewhat dense, 1.5–14 cm. in diameter.
Summit of the uppermost sheath broad, usually emarginate, the edges much overlapping almost or quite to the tip; and with the cluster of veins very strongly converging at the summit: sheaths rarely paler above: inflorescence conspicuously fastigiate. . . . var. *pacificus.*
Summit of the uppermost sheath somewhat narrowed, merely rounded, the edges not overlapping within 1 cm. of the top; veins much less strongly converging: upper sheaths much paler above: inflorescence irregularly spreading, rarely slightly fastigiate.
Sepals rarely exceeding either the petals or the capsule, 2.5–3.5 mm. long, firm, not conspicuously spreading nor strongly contrasting in color with the capsule: culms 2–4.5 mm. in diameter at the top of the sheaths, not sulcate . . . . . .var. *solutus.*
Sepals exceeding both the petals and the capsule, 3–4.2 mm. long, firm or rigid in texture and usually somewhat spreading, commonly contrasting in color with the darker capsule: culms 1–3.5 mm. in diameter at the top of the sheaths, finely striate or deeply sulcate. var. *Pylaei.*

Juncus effusus L. Sp. Pl. 326 (1753). *J. communis β effusus* E. Meyer, Junci Gen. Monog. Sp. 22 (1819).

The typical form in Europe seems to be a plant of medium stature with non-sulcate culms and pale basal sheaths; the flowers small with soft perianth; the inflorescence also small. It has not yet been seen by us from America.

Var. compactus Lejeune et Courtois, Comp. Fl. Belg. ii. 23 (1831). *J. conglomeratus* L. Sp. Pl. 326 (1753) probably in part. *J. effusus* var. *conglomeratus* of many authors, in part, not Engelm.— Plants tall and rather stout, deep-green, 4.5–12. dm. high: culms usually firm, faintly many-striate, 1.5–4 mm. in diameter at the top of the sheaths: sheaths large and rather loose, dull, pale- or chocolate-brown below; the uppermost rather thin, pale-brown or stramineous toward the summit, 6–14 cm. long: involucral leaf 7–20 cm. long: inflorescence small compact and dense, 1–4.5 cm. in diameter: perianth-divisions rather noticeably spreading from the base, soft in texture, curved and wrinkled when dry; the midrib broad and pale, with no conspicuous dark lateral bands; the margins broadly scarious; sepals 1.8–2.5 mm.

long, about equaling the petals: capsule olive-brown, rounded or slightly retuse and sometimes umbonate at apex, about equaling the perianth.— Typical specimens examined: NEWFOUNDLAND: Bay of Islands, September 2, 1897, *Waghorne*, no. 41, August 10, 1899, *Waghorne*, no. 64; Bay St. George, August 5–7, 1901, *Howe & Lang*, no. 1031; near Topsail, Conception Bay, August 12–19, 1901, *Howe & Lang*, no. 1264; bank of Rennie's River, St. Johns, July 31, 1894, *Robinson & Schrenk*, no. 132. PRINCE EDWARD ISLAND: Tracadie Beach, July 29, 1901, *Churchill*. NOVA SCOTIA: Big Intervale, Cape Breton Island, July 18, 1898, *J. Macoun*, no. 20,730; North Sydney, July 21–25, 1901, *Howe & Lang*, no. 654; Sydney, August 17, 1902, *Fernald*; Kentville, August 22, 1902, *Fernald*. NEW BRUNSWICK: Scovil's Brook, Westfield, August 8, 1909, *Fernald & Wiegand*. MAINE: Pembroke, August 15, 1909, *Fernald & Wiegand*; Squirrel Island, August 2, 1892, *Fernald*; Long Island, Portland Harbor, August 14, 1904, *Chamberlain & Fellows*, no. 716. MASSACHUSETTS: Brush Hill Turnpike, Milton, July 7, 1853, *Wm. Boott*; Otis, September 22, 1904, *R. Hoffmann*. BRITISH COLUMBIA: vicinity of Ucleulet, Vancouver Island, Aug. 9, 1909, *J. Macoun*, no. 78,085, said to have been introduced with Cranberry plants and moss from Nova Scotia. (Also in Europe.)

The variable size and diffuseness of the inflorescence in the different varieties of *J. effusus* may lead to some confusion in the interpretation of this variety. Although occasional specimens with condensed inflorescences of var. *solutus*, var. *Pylaei*, var. *brunneus*, var. *gracilis*, and perhaps of other varieties occur, the condensed character in this case accompanies definite structural characteristics, and seems to be fairly constant. The var. *compactus*, therefore, seems to be, in America, a real variety and not made up of forms with condensed inflorescences of different varieties. This variety differs from var. *solutus* in the compact inflorescence of smaller flowers with softer more spreading and more scarious perianth; from var. *decipiens* in the stouter culms with paler basal sheaths; and from var. *Pylaei* in the stouter culms with pale basal sheaths and condensed inflorescences of smaller flowers with shorter and much less rigid perianth. From var. *conglomeratus* it may be distinguished by the absence of coarse striations or ridges on the culm below the inflorescence; and from var. *brunneus*, with which it might be confused in the Northwest, by its coarser habit, paler flowers, broader less attenuate perianth-segments, and especially by its broad-ovate less attenuate prophylla, which in var. *brunneus* are narrow-ovate and long-attenuate.

Var. CONGLOMERATUS Engelm. in Gray, Manual, ed. 5, 537 (1867).

*J. Leersii* Marsson, Fl. Neu-Vorpomm. u. Rügen, 451 (1869). *J. conglomeratus* Robinson & Fernald in Gray, Manual, ed. 7, 273 (1907), perhaps of L. Sp. Pl. 326 (1753) in part; also of other authors. — Plants tall and rather stout, 6–10 dm. high, pale green; the stems easily compressible, faintly striate below, conspicuously 12–15-sulcate under the inflorescence, 1.5–2.5 mm. in diameter at the top of the sheaths; the latter rather loose, thin, light-brown below; the uppermost greenish above and 8–17 cm. long: involucral leaf 4–18 cm. long: inflorescence in American plants very congested (1–2.7 cm. in diameter): perianth 1.7–2.7 mm. long, soft, when dry wrinkled and curved; midrib of the color of the stem, bordered by pale brown bands and with narrow scarious margins: capsule about equaling the perianth, stramineous below, more or less tinged with deep-brown above, obtuse or retuse and varying from blunt to apiculate.— Typical specimens examined: Newfoundland: near Placentia Junction, August 11, 1894, *Robinson & Schrenk*, Whitbourne, August 16, 1894, *Robinson & Schrenk*, no. 133. Connecticut: in a wet bog, Franklin, July 20–23, 1907, *R. W. Woodward*. New Jersey: Egg Harbor, Atlantic Co., June 21, 1908, *E. B. Bartram*. (Also in Europe.) Specimens credited to Nova Scotia in the 7th edition of Gray's Manual prove to be immature material of some other variety.

Recent authors both in this country and abroad have been inclined to treat this variety as a distinct species on the basis of its retuse capsules and coarsely striate stems. Neither of these characters, however, is distinctive since the capsules of var. *brunneus* are often retuse, and the culms of var. *Pylaei* are frequently as coarsely striate. In our opinion, the variety in question does not differ more from the other varieties than they do from each other. The practice of treating it as a distinct species, therefore, seems scarcely warranted. The synonymy of var. *conglomeratus* is much confused. In the *Species Plantarum* Linnaeus included a *J. conglomeratus*, based upon earlier descriptions which, on careful analysis, apply (at least in part) as well or even better to var. *compactus*. Moreover, according to Buchenau, specimens labeled *J. conglomeratus* in the Linnean Herbarium are not of our variety; and other early authors employing the name *conglomeratus* failed to distinguish between the striate-culmed plant and var. *compactus*. The first unequivocal application of the name to the form with prominently striate culms, so far as we have been able to determine, was made by Engelmann in the 5th edition of Gray's Manual. The variety is readily distinguished by the very small flowers borne in a condensed head, rather soft perianth, strongly striate or sulcate culms and pale sheaths.

Var. DECIPIENS Buchenau in Engler's Bot. Jahrb. xii. 229 (1890).— Plants slender, 4–7 dm. high: culms rather wiry, finely and inconspicuously many-striate, 1–2 (rarely 3) mm. in diameter at the top of the sheaths: sheaths rather firm but not coriaceous, dark reddish-brown at base; the uppermost either dark-brown or greenish toward the summit, mostly 8–12 cm. long: involucral leaf 10–25 cm. long: inflorescence small, varying from rather dense to somewhat lax, 1.5–3 (rarely 4.5) cm. in diameter: perianth 2.5–2.9 mm. long, soft, somewhat curved and wrinkled when dry, more or less spreading, either concolorous or the scarious margins more or less irregularly suffused with reddish-purple: capsule short and rather turgid, equaling or slightly shorter than the perianth, olive-brown, often suffused with reddish-purple; summit very obtuse, not apiculate.— Typical specimens examined: NEWFOUNDLAND: Placentia, August 24, 1894, *Robinson & Schrenk*. QUEBEC: Vicinity of Cap à L'Aigle, August 18, 1905, *J. Macoun*, no. 68,858. ONTARIO; Plevna, July 28, 1902, *J. Fowler*; Cache Lake, Algonquin Park, July 11, 1900, *J. Macoun*, no. 21,997. MAINE: Southport, July 31, 1894, *Fernald*. NEW HAMPSHIRE: East Andover, August 13, 1903, *M. A. Day*; Jaffrey, July 16, 1897, *B. L. Robinson*, no. 302. MASSACHUSETTS: Ipswich, *Oakes*. (Also in eastern Asia).

Differs from var. *Pylaei* in the small flowers with short soft perianth, and from var. *solutus* in the more slender culms, darker more slender and commonly shorter sheaths, usually smaller inflorescence, and smaller flowers with softer perianth. This variety was described by Buchenau from Japanese material and credited by him to Japan only. It was distinguished only on the basis of its obtuse, not retuse, and less-completely 3-celled capsule. Judging from the conditions in other varieties, however, these are characters of comparatively slight importance, and are found in much of our American material. Nevertheless, all of the East Asian material in the Gray Herbarium is of one kind, unlike anything we have seen except the plants above cited from Newfoundland, eastern Canada and New England. It seems reasonably certain therefore that Buchenau had in hand plants of our present variety when describing var. *decipiens*.

Var. **exiguus**, n. var., caulibus tenuibus 4–6 dm. altis 1–1.5 mm. diametro, fortasse pallide viridibus firmis lentis in statu sicco subtiliter et aequaliter sulcatis; cataphyllis basilariis subcoriaceis fulvis basi rufescentibus, supremis 9–11 cm. longis; inflorescentia laxe fastigiata 4–5.5 cm. longa; bractea infima 4–10 cm. longa; perianthiis 2 mm. longis, sepalis et petalis mollibus in statu sicco marcidis curvatis, dorso viridescentibus vel fulvis, lateraliter fulvis, marginibus angustis scariosis; capsulis perianthium vix aequantibus fulvo-olivaceis non apiculatis.

Culms of medium height, very slender, 4–6 dm. high, probably pale-green, firm and wiry in texture, evenly and finely striate throughout, 1–1.5 mm. in diameter at the top of the sheaths: sheaths of medium firmness, pale brownish-rufescent below; the uppermost greenish toward the summit and 9–11 cm. long; involucral leaf 4–10 cm. long: inflorescence loosely fastigiate, 4–5.5 cm. long: perianth very small, 2 mm. long, soft, when dry wrinkled and curved; midrib greenish or tinged with pale-brown, bordered with pale-brown bands and narrow scarious margins: capsule scarcely equaling the perianth, pale olive-brown, not apiculate.— CALIFORNIA: Yosemite Valley, July, 1866, *H. N. Bolander*, no. 4949 (type in Gray Herb.), also *Bolander* in Engelm. Herb. Junc. Bor. Am. Norm. no. 9.; Clark's Ranch [Wawona], 1865, *J. Torrey*, no. 529.

This variety is usually quite distinct in appearance. It may be recognized by the very small pale flowers in open fastigiate inflorescences, and the very slender culms with pale sheaths.

Var. GRACILIS Hooker, Fl. Bor. Am. ii. 190 (1840).— Plant slender, 6–8 dm. high: culms rigid and wiry, faintly many-striate throughout, 1–1.5 mm. in diameter at the top of the sheaths: sheaths close, coriaceous, lustrous, castaneous throughout; the uppermost 7–11 cm. long: involucral leaf 5–9 cm. long: inflorescence small, varying from rather dense to somewhat open, 1.5–4 cm. long: perianth 2–2.9 mm. long, soft, when dry more or less wrinkled and curved; midribs greenish, very slender, bordered by very broad dark-brown bands and an almost obsolete scarious margin; sepals very slender-pointed: capsule scarcely equaling the perianth, olive-brown, obtuse and usually short-mucronate.— Typical specimens examined: BRITISH COLUMBIA: Burrard Inlet, July 22, 1889, *J. Macoun*, no. 27,851; vicinity of Vancouver, July 28, 1908, *Macoun*, no. 78,083. WASHINGTON: foot-hills of the Olympic Range, June 5, 1902, *J. M. Grant*, no. 117; salt marsh, Lilliwaup, Hood's Canal, July 2, 1890, *L. F. Henderson*, no. 1860; by springs on mountains, western Klickitat County, July 6, 1892, *W. N. Suksdorf*, no. 2157. CALIFORNIA: Thistle Springs, Mt. Sanhedrin, Lake County, July 23, 1902, *A. A. Heller*, no. 5956.

A portion of the Suksdorf material was kindly compared by Dr. Otto Stapf with Hooker's original specimens at Kew and he states that the two are undoubtedly the same.

Var. BRUNNEUS Engelmann, Trans. St. Louis. Acad. ii. 491 (1868). *J. effusus*, var. *hesperius* Piper, Contrib. U. S. Nat. Herb. xi. 180 (1906).— Plants tall and rather slender, 5–10 dm. high: culms rather rigid, inconspicuously many-striate, 1.2–2.4 mm. in diameter at the top of the sheaths: sheaths loose, membranous, reddish-brown at base; the uppermost much paler and greenish-drab toward the summit, mostly 10–15 cm. long: involucral leaf 7–15 cm. long: inflorescence small, varying from dense to rather loose, 1–3 cm. in diameter: peri-

anth 2.4–2.9 mm. long, soft, wrinkled when dry; midrib greenish, very slender, bordered by very broad dark-brown bands and a nearly obsolete scarious margin: sepals less slender-pointed than in the last variety: capsule about equaling the perianth, olive-brown, often castaneous at the obtuse or slightly retuse short-apiculate summit.— Typical specimens examined: — British Columbia: Sooke, Vancouver Island, August 2, 1893, *J. Macoun*, no. 511; Renfrew, Vancouver Island, June–July, 1901, *Rosendahl & Brand*, no. 39; Alberni, Vancouver Island, in salt marshes, August 2, 1887, *J. Macoun*, no. 27,850; vicinity of Nanaimo, July 4, 1908, *J. Macoun*, no. 78,080, July 10, no. 78,081; vicinity of Ucleulet, July 16, 1909, *J. Macoun*, no. 78,082. Washington: without locality, 1852, *J. G. Cooper*, no. 7; Montesano, Chehalis County, June 27, 1898, *A. A. & E. G. Heller*, no. 3970; Southbend, August 17, 1899, *W. J. Spillman*. Oregon: John Day, Clatsop County, August 20, 1902, *E. P. Sheldon*, no. 11,206. California: marshes, San Francisco, *Bolander*, no. 151; shore of Bolinas Bay near San Francisco, August 12, 1866, *Kellogg* in Engelm. Herb. Junc. Bor. Am. Norm, no. 10; large bogs in wet sandy soil, Lobos Creek near San Francisco, August 4, 1866, *Kellogg* in same, no. 11; near Ocean View, San Francisco, June 8, 1906, *A. A. Heller*, no. 8386; Pacific Grove, Monterey County, July 1, 1905, *C. P. Smith*, nos. 1093 and 1001.

In "*Das Pflanzenreich*" Buchenau takes up the name var. *aemulans* for this variety, based on the *J. aemulans* of Liebmann (in Vidensk. Meddel. nat. For. Kjöbenh. 38, 1850). Liebmann's description was based, however, on material from southern Mexico, and since we have seen no material of the present variety from that region, so far disconnected from its usual range, it seems unwise, without further knowledge of Liebmann's plant, to treat it as identical with var. *brunneus* Engelm. This variety and var. *gracilis* both have the same dark-colored perianth of similar rather soft texture, but may easily be distinguished by the basal sheaths. From var. *compactus*, which has been found on Vancouver Island, var. *brunneus* is quickly distinguished by its slender habit, darker flowers, and more slender and attenuate perianth-segments and prophylla.

Var. **pacificus** n. var., caulibus crassis 6–13 dm. altis 2–3.5 mm. diametro rigidis obscure multi-striatis; cataphyllis basilariis castaneis opacis chartaceis, supremis 6–15 cm. longis, marginibus fere ad apicem subtruncatum vel emarginatum arctissime imbricato-convolutis, venis ad apicem valde convergentibus; inflorescentia plerumque laxe fastigiata 2.5–15 cm. longa; bractea infima 6–20 cm. longa; sepalis 2.7–3.5 mm. longis submollibus quam petalis vix longioribus, dorso fulvo-viridibus gracilibus, marginibus fulvis scariosis; petalis similibus; capsulis perianthium vix aequantibus.

Plant rather large and stout, 6–13 dm. high or possibly more: culms rigid, faintly many-striate, 2–3.5 mm. in diameter at the top of the sheaths: sheaths chocolate-brown or castaneous at base or throughout and dull, chartaceous; the uppermost pale or dark toward the summit, 6–15 cm. long, the edges much overlapping nearly or quite to the sub-truncate or emarginate tip, the veins strongly converging at the summit: involucre 6–20 cm. long: inflorescence usually loosely fastigiate, rarely more spreading, 2.5–15 cm. long: sepals 2.5 3.5 mm. long, rather soft, scarcely longer than the petals; midrib pale greenish-brown, not very broad nor bordered by dark bands, but with pale-brownish scarious margins: petals similar: capsule about equaling the sepals, olive-brown, obtuse or slightly retuse, slightly apiculate. — Typical specimens examined: British Columbia: Barclay Sound, Vancouver Island, August 2, 1887, *J. Macoun*, no. 27,848; vicinity of Victoria, Vancouver Island, July 21, 1893, *J. Macoun*, no. 512; Burrard Inlet, July 27, 1889, *J. Macoun*, no. 27,849; vicinity of Nanaimo, July 6, 1908, *J. Macoun*, no. 78,078. Washington: Seattle, June 23, 1889, *C. V. Piper*, no. 1029; Union Lake, King County, August 5, 1890, *W. N. Suksdorf*, no. 1010; Waitsburg, July 31, 1897, *R. M. Horner*. Oregon: Calapooya Valley, Douglas County, alt. 3500 ft. July 17, 1899, *M. A. Barber*, no. 109; Wilamette Heights, Portland, July 7 and August 24, 1902, *E. P. Sheldon*, no. 10,832 (type in Gray Herb.). California: Mariposa Big Trees, July, 1866, *Bolander*; near Ukiah, Mendocino County, July 9, 1902, *A. A. Heller*, no. 5838; San Ysabel, San Diego County, June 20, 1903, *Leroy Abrams*, no. 3783; Fredalba, San Bernardino Mts., July 22, 1902, *Leroy Abrams*, no. 2797.

Rather easily recognized by the peculiar summit of the upper sheath and the fastigiate inflorescence. In some respects it seems intermediate between the var. *brunneus* and the eastern var. *solutus*. From the former it differs especially in the two characters mentioned above and also in the much paler flowers; from var. *solutus* it may be recognized by the same two characters and the less rigid perianth. The only other form with similar fastigiate inflorescence is the very slender small-flowered var. *exiguus*.

Var. **solutus** n. var., caulibus crassis pallide viridibus 6–17 dm. altis, 2–4.5 mm. diametro plerumque mollibus obscure multi-striatis; cataphyllis basilariis laxis basi fulvis, supremis membranaceis ad apicem fulvis vel stramineis interdum utrinque fuscis 9–28 cm. longis; inflorescentia laxis saepe diffusissimis 4–14 cm. diametro; bractea infima 1–4 dm. longa; sepalis 2.7–3.3 mm. longis subrigidis subappressis quam petalas vix longioribus subconcoloribus, dorso viridescentibus vel fulvis; maginibus angustis scariosis; petalis similibus; capsulis fulvis vel fulvo-viridibus paulo retusis perianthium aequantibus vel paulo superantibus.

Plants tall and stout, pale-green, 6–17 dm. high: culms usually soft (in the Southern States commonly firmer), faintly many-striate, 2–4.5 mm. in diameter at the top of the sheaths: sheaths large, rather loose, pale chocolate-brown below; the uppermost membranous and pale-brown or stramineous toward the summit, rarely dark throughout, 9–28 cm. long: involucral leaf 1–4 dm. long: inflorescence loose, often very large and diffuse, 4–14 cm. in diameter: sepals 2.7–3.3 mm. long, rather stiff and rigid (less so in southern material), the tips subappressed, about equaled by the petals; the back broad, greenish or pale-brown, usually not bordered by brown lateral bands and as broad as or broader than the narrow scarious margins; petals similar: capsule pale- or greenish-brown mostly slightly retuse, equaling or slightly longer than the perianth.—Typical specimens examined: Nova Scotia: "rare in low ground," Sydney, August 17, 1902, *Fernald*; Whycocogmah, Cape Breton Island, July 22, 1883, *J. Macoun*; near Pictou, July 12–18, 1901, *Howe & Lang*, no. 475; Halifax Harbor, September 2–6, 1901, *Howe & Lang*, no. 1523; New Brunswick: Scovil's Brook, Westfield, August 8, 1909, *Fernald & Wiegand*,—*Fernald*, no. 2223 (type in Gray Herb.). Maine: Pembroke, August 15, 1909, *Fernald & Wiegand*; Orono, July, 1890, *Fernald*; Gilead, July, 1897, *Kate Furbish*; Bristol, August 6, 1897, *E. B. Chamberlain*, no. 413; East Auburn, July 19, 1886, *E. D. Merrill*, no. 1046. New Hampshire: Warren, July 22, 1908, *E. F. Williams*. Massachusetts: Ipswich, *Wm. Oakes*; Revere, August 4, 1907, *H. H. Bartlett*, no. 881; Scituate, July 10, 1898, *E. F. Williams*; Centreville, August 19, 1901, *Clara Imogene Cheney*; Pittsfield, September 23, 1899, *R. Hoffmann*. Rhode Island: Providence, June, 1845, *Geo. Thurber*, August 25, 1892 and July 30, 1893, *J. F. Collins*. Connecticut: Colebrook, September 5, 1899, *Fernald*; East Haven, June 20, 1886, *A. L. Winton*. New York: Tannersville, July 28, 1903, *C. S. Williamson*, Herb. Acad. Phila., no. 508,454. New Jersey: Seabright, June 24, 1892, *Ida A. Keller*; Barnegat City, July 17, 1909, *Bayard Long*; Winslow, July 27, 1901, *Witmer Stone*, no. 1808. Pennsylvania: Lehigh Co., 1887, *A. F. K. Krout*; Island Park above Easton, July 14, 1897, *T. C. Porter*; West Philadelphia, June 14, 1894, *A. MacElwee*, Herb. Acad. Phila., no. 517,955; Perkiomen, July 29, 1891, *Joseph Crawford*, Herb. Acad. Phila., no. 504,523. North Carolina: Biltmore, July 1, 1897, Biltmore Herb. no. 4086. South Carolina: no locality, *M. A. Curtis*: Santee Canal, *H. W. Ravenel*; Aiken, July 1866, *H. W. Ravenel* in Engelm. Herb. Junc. Bor. Am. Norm. no. 8. Georgia: Clarke County, June 18, 1900, *R. M. Harper*, no. 3; near Savannah, June 17, 1903, *R. M. Harper*, no. 1834. Florida: Eustis, Lake County, April 21, 1894, *G. V. Nash*, no. 452. Indiana: Marion County, July 6, 1904, *H. H. Bartlett*; Licking, Blackford County, July 16, 1905, *C. C. Deam*, no. 34. Illinois: Jackson, July 22, 1899, *I. M. Clokey*. Tennessee: Henderson, June, 1892, *S. M. Bain*, no. 226, in part. Arkansas:

Washington County, May, 1880, *F. L. Harvey*, no. 14. Texas: no locality given, *Berlandier*, no. 1942.

This is the common form on the coastal area all the way from Nova Scotia southward and again in the lower Mississippi Valley. The coarse habit, pale sheaths, loose inflorescence, and pale flowers with stiff perianth which is rarely longer than the capsule and usually appressed to it, serve ordinarily to distinguish this variety from others. Forms with the inflorescence comparatively dense are not rare, however, in which case it is difficult to separate them from var. *compactus*, except by the larger, firmer and more appressed perianth. In eastern and central Pennsylvania there is a form in all respects like typical var. *solutus* except that the perianth-segments are less appressed, thus suggesting (according to the length of the sepals) var. *Pylaei* on the one hand and a loosely flowered var. *compactus* on the other. In form and texture the perianth-segments are as in var. *solutus* and for the present the plant is treated as an extreme form of that variety.

Var. **Pylaei** (Laharpe) n. comb. *J. Pylaei* Laharpe, Mem. Soc. d'Hist. Nat. Par. iii. 119 (1827).— Plants varying from slender to stout, 3–11 dm. high: culms varying from coarse and soft to slender, rigid and wiry, and from conspicuously few-sulcate to obscurely many-striate under the inflorescence, 1–3.5 mm. in diameter at the top of the sheaths: sheaths rather loose, reddish-purple and often very dark at base; the uppermost membranous toward the summit, varying from purplish to greenish-drab, 4–10(–19) cm. long: involucral leaf 1–3 dm. long: inflorescence from dense to very loose, 1.5–8 cm. in diameter: perianth 3–4.2 mm. long, rather stiff and rigid: sepals somewhat spreading, distinctly exceeding the petals, the tips long-subulate; the back very broad, green, bordered with very slender often nearly obsolete light-brown bands and broad scarious margins; petals similar but shorter and less subulate-tipped: capsule olive-brown, rounded at the tip, distinctly shorter than the sepals, not apparently apiculate.— Typical specimens examined: Newfoundland: Salmonier River, August 26, 1894, *Robinson & Schrenk*, no. 131. Quebec: Little Métis, July 27, 1906, *J. Fowler*. New Brunswick: Bocabec, July 19, 1900, *J. Fowler*; Scovil's Brook, Westfield, August 8, 1909, *Fernald & Wiegand*. Maine: Fort Fairfield, August 10, 1909, *Fernald & Wiegand*; Perry, August 15, 1909, *Fernald & Wiegand*; Foxcroft, August 26, 1896, *Fernald*; Orono, July 16, 1890, *Fernald*; Rumford, July 4, 1890, *J. C. Parlin*; Wilson's Mills, Magalloway River, July 29, 1903, *E. F. Williams*. New Hampshire: White Mountains, July 28, 1853, *Wm. Boott*; Jaffrey, July 16, 1897, *B. L. Robinson*, no. 301. Vermont: Middlebury, July 13, 1878, *E. Brainerd*; Manchester, July 3, 1898, *M. A. Day*, no. 301. Massachusetts: Spot Pond, Middlesex County, July 10, 1853, *Wm. Boott*; Reading, July 12, 1882, *W. H.*

*Manning*; Eastham, July 9–10, 1907, *F. S. Collins*, nos. 240 and 261; Adams, August 20, 1901, *M. A. Day*, no. 88; Glendale, August 10, 1904, *R. Hoffmann*. CONNECTICUT: Colebrook, September 5, 1909, *Fernald*; Southington, July 14, 1896, *L. Andrews*, no. 185; New Haven, June 13, 1886, *A. L. Winton*. NEW YORK: near summit of a mountain, alt. 2000 ft., Atwell, Herkimer County, July 13, 1902, *J. V. Haberer*, no. 1940. PENNSYLVANIA: Buck Hill Falls, Monroe Co., July 10–14, 1903, *Witmer Stone*, nos. 5387 and 5392; Lopez to Bella Sylva, alt. 2000–2300 ft., Sullivan and Wyoming Cos., *Witmer Stone*, no. 161. WEST VIRGINIA: Blister Swamp, Randolph County, September 15, 1904, *J. M. Greenman*, no. 112. MICHIGAN: Detroit, August 15, 1866, *J. M. Bigelow* in Engelm. Herb. Junc. Bor. Am. Norm. no. 7; Keweenaw County, August, 1886, *O. A. Farwell*, no. 465; Fayette, August 20, 1901, *M. A. Barber*. WISCONSIN: Milwaukee, *I. A. Lapham*.

Apparently more northern in its distribution than var. *solutus*. Very variable, especially as to the culms which are either slender or coarse, strongly sulcate or nearly smooth, but all the forms intimately connected by intermediates. The variety may be recognized most easily by the rather large rigid perianth (the sepals longer than the petals) which usually exceeds the capsule and contrasts in color with it. When present, the coarse sulcate striations of the culm are also characteristic. The sheaths are in color more like those of var. *decipiens*.

## CRATAEGUS VIRIDIS L. IN VIRGINIA.

W. W. EGGLESTON.

*Crataegus viridis* was first reported from Virginia by John Clayton but until recently had been seen by no one since Clayton's time, one hundred and seventy-five years ago.

In 1907 I saw, in the United States National Herbarium, a specimen of L. F. Ward's labeled "*Crataegus coccinea*, Chesapeake City, Md., May 12, 1877." This proved to be *C. viridis* L. and I so reported it in Gray's New Manual.

Last year I wrote Professor Ward to find out more in regard to the station and received this answer: — "I have looked up my notes for

May 12, 1877 and find that a party consisting of Dr. Chickering, Mr. Morong and myself landed at Fortress Monroe early that morning, botanized around there in the forenoon, and walked to Hampton in the afternoon, collecting on the way. The plants not growing in the vicinity of Washington are enumerated, but *Crataegus* is not among them. After naming three species of *Ranunculus* collected between Fortress Monroe and Hampton the note-book reads 'together with some plants known to grow about Washington, but which seemed to exhibit peculiar forms.' I presume that the *Crataegus* was among these latter. It incidentally notes that 'Dr. Chickering staid all night with a minister in Chesapeake City, who brought our things from Ft. Monroe, and Mr. Morong and I came on to Hampton and took rooms at the hotel.' This is the only mention of Chesapeake City, and I am wondering whether I did not mean Elizabeth City. Why I should have said 'Md.' instead of 'Va.' is beyond my comprehension."

I then wrote Dr. J. W. Chickering. He says this: — "Please excuse my delay, but I wanted to look over my herbarium and see if any of my specimens of that collection were from anywhere north of the vicinity of Hampton. I find so far as I can see, that all that collection was made between Hampton and Dismal Swamp and nothing north of that region."

I have since examined Dr. Chickering's herbarium, at Gallaudet College, Washington, D. C., and did not find the *Crataegus*. Elizabeth City is probably but a few miles south of Clayton's station, but in the same general region. Mr. Alfred Rehder, of the Arnold Arboretum, found *Crataegus viridis* on the Blackwater River near Zuni, Va., in 1908.

I have no doubt that the species will be found more common than supposed, in the low lands along streams in eastern Virginia, as it occurs in northern North Carolina in similar situations. My own No. 4007 from Finchley, Va., Aug. 1908, may prove to be a young shoot of this species.

New York Botanical Garden.

# REPORTS ON THE FLORA OF THE BOSTON DISTRICT,—VII.

In preparing this list, the committee has continued the practice of giving records of existing specimens collected more than fifty years ago, that is, before 1860. There are, however, numerous specimens collected by William Oakes, in and around Ipswich for the most part, without any dates. These have not been quoted, except where the plants are very rare. Of course they were all collected before July 31, 1848, when William Oakes met his tragic death. Another old-time collector who noted few dates was C. J. Sprague.

Where lists of towns are given for the rarer plants, the alphabetical order has been changed to the geographical order of north to south and east to west. We feel that this will be more satisfactory, and give a much better idea of plant distribution. The committee has worked from rather limited data in regard to some of the species, and if any readers of Rhodora can add anything to the facts stated here, the knowledge will be gladly received.

## JUNCACEAE.

### JUNCUS.

**J. acuminatus** Michx. Wet sandy and muddy places; common throughout. Collected by John A. Lowell in Danvers, July 1, 1846, and in Beverly, August, 1849, and by Wm. Boott in Milton, Aug. 29, 1853.

**J. articulatus** L. Wet soil; Stoneham, Medford, Cambridge, Mattapan [Dorchester]. There are various printed records for this species, but since the variety has been segregated, it is impossible to know just what is meant by them. The type is apparently rare in our territory.

**J. articulatus** L., var. **obtusatus** Engelm. Wet soil; Lowell, Stoneham, Malden, Milton and Blue Hill Reservation. Collected by Wm. Boott in "wet field near Tavern, Spot Pond, Stoneham, July 11, 1853," and at Edgeworth [Malden], July 19, 1853.

**J. balticus** Willd., var. **littoralis** Engelm. Moist sand, mostly brackish, all along the coast.

**J. brachycarpus** Engelm. Sandy bluff, Ocean Ave., Scituate (*G. G. Kennedy* Aug. 15, 1901; *G. G. Kennedy, W. P. Rich & E. F. Williams,* Sept. 8, 1901). "The first and so far as I know the only station in Massachusetts" (M. L. Fernald).

**J. brevicaudatus** (Engelm.) Fernald. Wet soil; from Weymouth and Milton north and west. Collected in Essex County by Wm. Oakes in April, 1848, and by Wm. Boott at Houghton's Pond, Milton, Sept. 8, 1853.

**J. bufonius** L. Moist soil; very common throughout. Collected by John A. Lowell in Danvers, July 1, 1846, and by Wm. Boott in Winchester, July 15, 1853.

**J. bufonius** L., var. **congestus** Wahlb. Clay bank, Danvers (*J. H. Sears,* July 14, 1902).

**J. bufonius** L., var. **halophilus** Buchenau & Fernald. Plum Island, [Essex Co.] (*Wm. Oakes,* no date).

**J. canadensis** J. Gay. Wet ground; common throughout. Early collected by John A. Lowell in Beverly, August, 1847, and by Wm. Boott, Mystic Pond, Sept. 12, 1849; Dorchester, Aug. 28, 1853; Milton, Aug. 29, 1853.

**J. dichotomus** Ell. var. **platyphyllus** Wiegand. Meadows and swamps. Chelsea (*Wm. Boott,* July 2, 1853); Stoneham (*H. J. Koehler,* Aug. 15, 1906); Middlesex Fells (*H. J. Koehler,* July 12, 1905); Lexington (*C. H. Knowlton,* July 23, 1898); Scituate near Egypt station (*G. G. Kennedy,* Aug. 15, 1901).

**J. effusus** L., var. **compactus** Lejeune & Courtois. Ipswich (*Wm. Oakes,* no date); "Brush Hill turnpike left hand going from town just before getting to second toll-house."[1] Milton (*Wm. Boott,* July 7, 1853).

**J. effusus** L., var. **decipiens** Buchenau.[2] Ipswich (*Wm. Oakes,* without further date).

**J. effusus** L., var. **Pylaei** (Laharpe) Fernald & Wiegand. Boggy meadows and pond borders. Reports from Ward Hill, Bradford (part of Haverhill), Ipswich (*Wm. Oakes*), Beverly (*John A. Lowell,* August, 1846), Reading, Spot Pond, Stoneham (*Wm. Boott,* July 10, 1853), Milton, Canton, Norfolk, and South Hanson. It doubtless occurs throughout our area.

[1] For the precise location of this vaguely stated station we are indebted to the patient researches of Dr. George G. Kennedy.

[2] Owing to Fernald and Wiegand's recent segregation of *Juncus effusus* L. the distribution of the various varieties in the region under consideration is not very well understood as yet, as collectors have not looked especially for the different forms.

**J. effusus** L., var. **solutus** Fernald & Wiegand. Low ground, meadows, marshes, and shores of ponds and streams. Reported from many stations throughout the district except in the extreme northern, western and southern portions, where it is doubtless common. It was collected by Wm. Boott in "upland, wet meadow," Winchester, July 5, 1853. This is our common form.

**J. filiformis** L. Shore of Merrimac River, Lawrence (*A. S. Pease*, June 10, 1903); "Concord (E. S. Hoar; specimen in herb. of)" according to Dame & Collins, Fl. Middlesex Co. 109 (1888).

**J. Gerardi** Loisel. Salt marshes; common. As reports show its abundance along the Charles River as far up as East Watertown, it will be interesting to note how long this species persists under the changed conditions caused by the Charles River Dam. Fresh water and a permanent level will have no little effect on the halophytes which have heretofore flourished along this estuary. Specimens were collected by Wm. Oakes, Ipswich, 1833; John A. Lowell, Beverly, July 16, 1846; Cambridge, June 16, 1846; Wm. Boott, Edgeworth [Malden] July 9 and July 19, 1853; Medford, June 20, 1858.

**J. Greenei** Oakes & Tuckerm. In barren, generally dry soil, common.

In the Gray Herbarium are two sheets collected by Wm. Oakes, "in arenosis siccis ad Ipswich." To one of these is attached the following autograph letter from the collector: "For Dr. Gray. This is probably a new species, and not fit to distribute. I should not disdain to stand godfather to it myself. This I suppose was first found by me as early as 1825, perhaps some years earlier. I showed it to Tuckerman at Plymouth in 1839, who sent specimens to Torrey, and I sent abundant specimens in flower and in fruit to Torrey & Gray this spring.— Sand, Ipswich, Mass."

The plant was finally published by Oakes & Tuckerman (Am. Jour. Sci., xlv. 37 (1843)). It was named for Mr. Benjamin D. Greene, the first President of the Boston Society of Natural History.

**J. marginatus** Rostk. Damp ground, common throughout. Collected in Danvers by John A. Lowell in August, 1849, and at Chelsea Beach Island [Revere] by Wm. Boott, Sept. 10, 1853.

**J. militaris** Bigel. Margins of ponds and streams; well distributed, but rather local. Collected by John A. Lowell in Wenham, July, 1847. Round Pond, Tewksbury, is the type station for this species, as it was discovered there by Mr. B. D. Greene. Dr. Jacob Bigelow

published it in the second edition (1824) of his Florula Bostoniensis, on page 139.

**J. nodosus**[1] L. Concord (*Horace Mann*, 1862. Specimen in herb. W. Deane).

**J. pelocarpus** May. Wet sandy and swampy grounds; not reported south of Norfolk, but generally distributed in the rest of the region. Collected by John A. Lowell in Essex, August, 1848, and Beverly, August, 1849; and by Wm. Boott in West Cambridge, Aug. 20, 1853.

**J. secundus** Beauv. Dry sandy or rocky places; Medford, Winchester, Lexington, Cambridge, Wellesley, Framingham, Blue Hill Reservation.

**J. tenuis** Willd. Fields, roadsides and meadows; common throughout. Collected by F. Boott in Cambridge, 1819; by John A. Lowell, Roxbury, June 9, 1846, and Beverly, Aug. 9, 1846; and by Wm. Boott in Dorchester, July 3, 1853.

**J. tenuis** Willd., var. **anthelatus** Wiegand. Andover (*A. S. Pease*, July 10, 1904); path, Blue Hill, Milton (*G. G. Kennedy*, July 9, 1899); old clay borrow-pit, abundant, Lamb Hill, Framingham (*A. J. Eames*, Sept. 21, 1909).

**J. tenuis** Willd., var. **Williamsii** Fernald. Below tide limit, Newburyport (*M. L. Fernald*, Oct. 2, 1902); Andover (*A. S. Pease*, July 10, 1904); Edgeworth [Malden] (*Wm. Boott*, July 19, 1853); dry pasture, Lincoln (*C. H. Knowlton*, Sept. 19, 1903).

## LUZULA.

**L. campestris** (L.) DC., var. **multiflora** (Ehrh.) Celak. Fields, meadows and open woods, in wet or dry situations; very common. Collected by Wm. Boott, in Dorchester, June 12, 1853, and by John A. Lowell in Roxbury, June, 1846.

[1] There are two specimens of *Juncus articulatus* L. in the New England Botanical Club Herbarium collected by C. E. Perkins and mounted on one sheet. This formed a part of the Middlesex Institute Herbarium which was presented to the New England Botanical Club. One specimen from "Medford or Somerville near spring and quarry behind Winter Hill, Aug. 1, 1881" is named by Dr. C. W. Swan *Juncus nodosus* L. The second specimen is labelled "Medford or vic. near Winter Hill, July 7, 1880." Under the label Dr. Swan has written, "Plants do not correspond precisely with description of *J. nodosus* in the Manual, but are like specimens in herb. C. W. Swan, so named by Wm. Boott." This explains the reference to *Juncus nodosus* in Dame & Collins, Fl. Middlesex Co. 110 (1888): "Medford (Wm. Boott; specimen in herb. of)." [W. D.]

**L. saltuensis** Fernald. Essex County (*Wm. Oakes*, no date, specimens in herb. Bost. Soc. Nat. Hist. and Peabody Acad. Science, Salem).

C. H. Knowlton
J. A. Cushman
Walter Deane
A. K. Harrison
*Committee on Local Flora.*

---

A fourth Pinus rigida for Coos County, New Hampshire.— I have a fourth specimen of Pitch Pine (*Pinus rigida* Mill.) to record from Coos County, New Hampshire (see Rhodora, xi. 21 (1909). Mr. A. E. Philbrook of Philbrook Farm, Shelburne, in the southeastern part of the county, found this fourth tree on his estate in February, 1909, and he showed it to me on May 14 of the same year. The tree is about 30 meters from the one first discovered, which was "on a wooded slope about 35 or 40 meters above the intervale," and is some 6 meters higher up. It is a good specimen measuring 1.4 meters in circumference 12 decimeters above the ground, and is about 18 meters high. It is surrounded by the forest trees, but not unduly crowded by them, and is covered with cones though I was unable to find any seedlings or young trees near by. I preserved a specimen of the leaves for my herbarium. The rather surprising rarity of the Pitch Pine in Coos County may justify a printed record of this newly observed individual.— Walter Deane, Cambridge, Massachusetts.

---

Josselyn Botanical Society of Maine.— The annual meeting of the society will be held from July 5th to 9th, 1910, at Jackman, Maine. Headquarters will be at the New McKenny House, where a special rate of $2.25 per day has been secured. It is expected, also, that reduced rates will be obtained from the railroads in Maine. The region around Jackman has never been botanized, and it is hoped that many interesting specimens will be detected. The region offers exceptional facilities for the study of the woods, swamps, and lakes in the vicinity of the international boundary. Further information may be obtained from Dr. Ora W. Knight, 84 Forest Ave., Bangor, Maine. — Edward B. Chamberlain, *Secretary.*

# THE WINTER MEETING OF THE VERMONT BOTANICAL CLUB.

Nellie F. Flynn.

The fifteenth annual winter meeting of the Vermont Botanical Club was held in Burlington, at the Williams Science Hall, University of Vermont, Friday and Saturday, January 21–22, 1910, in conjunction with the Vermont Bird Club. The joint programme was very interesting.

Twenty-four botanical papers were presented and discussed. Three of these were illustrated with lantern slides, viz: — "Forestry for Vermont," by A. F. Hawes, state forester, "The Beginnings of Sexual Reproduction in Green Plants," by Dr. Tracy E. Hazen, and "How Hybrids Give Rise to Stable Forms," by Dr. Ezra Brainerd.

The annual supper, complimentary to visiting members was held at Y. M. C. A. Hall, Friday evening. The answers to roll call were laudatory of Prof. L. R. Jones, who has gone to the University of Wisconsin, the Club thereby losing its most valuable officer.

Fifteen new members were elected and an invitation to hold the next summer meeting at Hartland and Queeche Gulf, with headquarters in Woodstock, was accepted.

Officers were elected as follows: Pres., Ezra Brainerd, Middlebury. Vice-Pres., C. G. Pringle, Burlington. Sec., Prof. H. A. Edson, Burlington. Treas., Mrs. Nellie F. Flynn, Burlington. Librarian, Miss Phoebe M. Towle, Burlington. Assistant Librarian, Miss Helen Hodge, Burlington. Executive Committee, D. S. Carpenter, Middletown Springs, Mrs. E. B. Davenport, Brattleboro, and Mrs. W. E. Mack, West Woodstock. Committee on next summer meeting, G. H. Rugg, Hanover, New Hampshire, J. G. Underwood, Hartland, and Mrs. A. B. Morgan, Hartland. Committee on next winter meeting, G. L. Kirk, Rutland, Miss Nancy Darling, Woodstock, and Miss Carrie W. Ormsbee, Brandon.

*Vol. 12, no. 136, including pages 57–80, was issued 18 April, 1910.*

## Gray's New Manual of Botany—Seventh Edition

Thoroughly revised and largely rewritten by BENJAMIN LINCOLN ROBINSON, Ph.D., Asa Gray Professor of Systematic Botany, and MERRITT LYNDON FERNALD, S.B., Assistant Professor of Botany, Harvard University.

**Regular Edition. Price, $2.50. Tourist's Edition. Price, $3.00.**

NO effort or expense has been spared to attain in this revision the highest degree of clearness, terseness, and accuracy. The plant families have been rearranged in a manner to show the latest view of their affinities, and hundreds of species have been added to the flora. The nomenclature has been brought into thorough accord with the important international rules recently established — a feature of great significance. Nearly a thousand figures have been added, and scores of brief and lucid keys have been introduced in a manner which greatly simplifies the problem of plant identification.

### COULTER & NELSON'S NEW MANUAL OF ROCKY MOUNTAIN BOTANY, $2.50

By JOHN M. COULTER, Professor of Botany, University of Chicago, and AVEN NELSON, Professor of Botany, University of Wyoming.

COMPLETELY rewritten, and represents current knowledge in reference to the flora of the Central Rocky Mountains. The nomenclature follows Gray's New Manual. The descriptions of plants have been checked up by actual examination.

**AMERICAN BOOK COMPANY**

New York Cincinnati Chicago Boston

HOME GROWN LILIES.

Fresh from Beds. Wild Flowers, Hardy plants of all kinds.
Send for catalogue.

F. H. HORSFORD, Charlotte, Vt.

BIRDS OF MAINE

is the latest and most complete work on northeastern bird life. It is an illustrated work of 693 pages and contains descriptions of the plumage and full accounts of the nests, eggs, habits and general home life of 327 species of birds. As a book for the amateur or for the scientific student of bird life in northeastern America it is unexcelled. Sent prepaid on receipt of price, $3.50. Address all orders to

ORA WILLIS KNIGHT, 84 Forest Avenue, Bangor, Maine.

CAMBRIDGE BOTANICAL SUPPLY COMPANY,

WAVERLEY, MASS.

BOTANICAL SUPPLIES OF EVERY DESCRIPTION.

Samples of Driers and Mounting Papers sent on request.
ASK FOR NEW CATALOG, NO. 91.

STANDARD MATERIAL. IMMEDIATE SHIPMENT.

**Physiological Instruments. How do Plants Work?**